



**State of New Hampshire
DEPARTMENT OF ENVIRONMENTAL SERVICES**

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William K. Fay
P.O. Box 543
Thorndike, MA 01079

**ADMINISTRATIVE ORDER
No. WD 03-008**

January 28, 2003

Re: Badger Pond Dam, Dam #021.02
Belmont, NH

A. INTRODUCTION

This Administrative Order is issued by the Department of Environmental Services, Water Division to William K. Fay pursuant to RSA 482:12 and RSA 482:87. This Administrative Order is effective upon issuance.

B. PARTIES

1. The Department of Environmental Services, Water Division ("DES"), is a duly constituted administrative agency of the State of New Hampshire, having its principal office at 6 Hazen Drive, Concord, NH 03301.
2. William K. Fay is an individual having a mailing address of P.O. Box 543, Thorndike, MA 01079.

C. STATEMENTS OF FACTS AND LAW

1. Pursuant to RSA 482, DES regulates the construction and maintenance of dams so as to meet the stated statutory objectives, including the regulation of water levels, the lessening of flood damage, and the enhancement of public safety. Pursuant to RSA 482:87 the Commissioner of DES has adopted NH Admin. Rules Env-Wr 100-700 to implement this program.
2. RSA 482:11-a requires the owner of a dam to maintain and repair the dam so that it does not become a dam in disrepair.
3. William K. Fay owns Badger Pond Dam, located in Belmont, NH, further identified in DES records as Dam #021.02 ("the Dam"). William K. Fay (the "Owner") has acknowledged ownership of the Dam in a correspondence to the Water Division dated April 29, 2002 regarding an update to the Emergency Action Plan as required by RSA 482:12 and Env-Wr 505.25 (c).
4. On February 17, 1998, DES issued Administrative Order No. WD 98-04 ("the Order") to the Owner. Paragraph E.3 of the Order required the removal of all tree and brush growth on the embankment crest, along the left and right downstream embankment slopes, and to a distance of 15 feet downstream from the toe of the embankment slopes.

5. To date, the Owner has not complied with Paragraph E.3 of the Order.
6. RSA 482:12 requires DES to periodically inspect all dams in the state which may pose a menace to public safety, and to take action to ensure that the dam is repaired or reconstructed if the inspection indicates that the public safety so requires.
7. RSA 482:2, V defines a "dam in disrepair" as a dam which is a menace to public safety and is incapable of safely impounding flood waters to its crest, or is incapable of maintaining a reasonably constant level of waters impounded or which does not contain adequate gates and sluiceways to provide for the holding or controlled discharge of waters impounded.
8. Env-Wr 101.21 defines "menace to public safety" as any dam whose failure would threaten life or property. Property, when used in this context, means buildings, structures or other real estate.
9. Env-Wr 101.06 defines "Class C Structure" as a dam with a high hazard potential, the failure of which would result in probable loss of life or major damage to interstate highways.
10. Env-Wr 101.31 defines "probable loss of life" as the risk posed by the inundation above the first floor elevation of a habitable structure during a dam breach.
11. In accordance with Env-Wr 301.03, DES has classified the Dam as a Class C, high hazard potential structure.
12. RSA 482:8-a requires an annual dam registration fee, in the amount of \$600 for Class C dams, to be paid to the department on January 1 of each calendar year. Failure to pay the registration fee shall be considered a violation of RSA 482:15.
13. On July 3, 1996, DES issued a letter to the Owner requesting trees and brush to be removed from the dam.
14. On November 24, 1997, DES issued a Letter of Deficiency ("LOD") to the Owner requesting the removal of trees and brush, written verification that the gates are operable, preparation and submittal of an Operations and Maintenance Plan, and submittal of the results of the dam breach analysis and inundation mapping.
15. On June 26, 1998, DES granted a time extension, as requested by the Owner, to complete outstanding items required by the Order.
16. On June 29, 1998, DES received a signed Operations and Maintenance Plan ("the Plan") dated June 28, 1998, from the Owner, stating that 'the embankment vegetation is inspected and any trees or brush that have taken root will be removed'. The Plan also states that "any bare or eroded areas of the embankment or dikes will be repaired and seeded".
17. September 1998, DES personnel observed that the Owner has not been implementing the terms of the Plan.
18. On June 30, 1998, DES sent a letter to the Owner, notifying him that the Plan was approved for its content.

19. DES received an Emergency Action Plan ("EAP") from the Owner in May of 2002.
20. On July 24, 2002, DES conducted an inspection of the Dam in accordance with RSA 482:12 and Env-Wr 502.02 (a) (3). A subsequent inspection of the South Dike, located approximately 650 feet south of the main dam, was conducted on December 9, 2002. Additional site visits and inspections were conducted on December 18, 19, 24, 27, and 30, 2002.
21. The above mentioned inspections revealed that there are still outstanding items required under the Order that have not been addressed. The following is a list of deficiencies, including outstanding items under the Order, as well as new deficiencies noted during the site inspections and subsequent file review:

North Dike (located 450 feet north east of main dam):

- a. The entire north dike is completely overgrown with trees and brush. The dike could not be properly inspected for sloughing, soil erosion, crest width, side slope, upstream erosion protection, and seepage. Trees and brush were also located within 15 feet of the toe of the slope and abutments. There was a wet area located at the toe of the dike near the left abutment.

South Dike (located 650 feet south of the main dam):

- b. The south dike was overgrown with trees and brush on both the upstream and downstream slope. There were trees and brush within 15 feet of the toe of slope and abutments.
- c. The crest was generally uneven and showing signs of erosion. There was also missing soil near the right abutment at the top of the downstream slope.
- d. There is leakage/possible boil located approximately in the center of the dike and 10 feet downstream from the toe of the dike. At the time of inspection there was approximately 4 feet of head above the leakage/boil exit point. Flow is estimated to exceed 5 gallons per minute. The ground was frozen, preventing the detection of soft soils along the entire dike and downstream area.

Main Dam

The following areas associated with the main dam were completely overgrown with trees and brush:

1. Left embankment between the left spillway abutment and the left earth abutment, and within 15 feet of the abutments and toe of slope.
2. Spillway discharge channel between the spillway and Route 106 culverts.
3. Right embankment between the right spillway abutment and the right earth abutment, and within 15 feet of the abutments and toe of slope.
4. Along the entire length of the penstock and around the perimeter of the powerhouse located adjacent to Route 106.

- f There is approximately 2.5 feet of settlement of the left earthen crest adjacent to the gatehouse located at the left end of the spillway.
- g The concrete on the downstream face of the gatehouse is in extremely poor condition with several cracks and efflorescence. The structural stability is questionable.
- h The gatehouse was not locked at the time of inspection and contained trash and aluminum cans. In addition, a significant portion of the roof was torn off. The gate operator does work, however, the wood gate and gate stem are in poor condition.

The gate located on the right spillway abutment was opened on December 18, 2002, during a site visit with the owner. Some sediment was released downstream when the gate was opened. Although the gate does operate, it is unknown if the gate will leak once closed.

There is missing concrete on the right downstream spillway training wall located approximately 4 feet from the upstream face of the Dam.

- k There are three 1/8th-inch-wide cracks on the right upstream face concrete wall at 3, 9, and 12 feet to the right of the spillway. The crack located 12 feet from the spillway extends through the thickness of the wall and is visible on both the upstream and downstream faces of the Dam.

The concrete on the right downstream face of the Dam is in generally poor condition with several cracks and spalling.

- m The right upstream training wall, located approximately 40 feet to the right of the spillway, is extensively deteriorated with several large cracks and eroded/missing concrete.
- n There is a separation between the right concrete spillway training wall and the right concrete retaining wall. This separation was present in the 1979 U.S. Army Corps of Engineers Phase I Inspection Report and appears to have further deteriorated and widened.

22. DES contacted the Owner on December 18, 2002, and expressed safety concerns regarding the leak associated with the south dike and general concerns about the Dam. The Owner met DES on site that afternoon to open the right low level gate to begin lowering the impoundment. The Owner returned to the site on December 30, 2002 to remove the turbines and open the left penstock head gate.

D. DETERMINATION OF VIOLATIONS

1. The Owner has violated RSA 482 -a by failing to maintain the Dam to prevent it from becoming a "dam in disrepair".
2. The Owner has violated the Order issued pursuant to RSA 482:11 by failing to remove all tree and brush growth on the embankment crest, along the left and right downstream

embankment slopes, and to a distance of 15 feet downstream from the toe of the embankment slopes.

E. ORDER

Based on the above findings, DES hereby orders the Owner as follows:

1. **Immediately** lower the impoundment and maintain the pond a minimum of 5 feet below the spillway crest until such time as compliance with items E.2 and E.4 through E.11, or E.3 and E.12 of this Order has been achieved.

2. **By April, 2003 either:**

- a. Submit plans, specifications, and permit applications to repair the dam in accordance with items E.4 through E.11 below; **OR**
- b. Submit plans, specifications, and permit applications to remove the dam.

If the Owner elects to repair the dam pursuant to Paragraph E.2a, then the Owner must address Paragraphs E.3 through E.10, below, in accordance with all approved plans, specifications and permits for repair by the dates indicated.

3. **By July , 2003** remove all trees and brush from the following locations:

- a. North Dike (located 450 feet north east of the main dam)
From the upstream slope, crest, downstream slope, and within 15 feet of the left and right earth abutment as well as to a distance of 15 feet from the toe of slope.
- b. South Dike (located 650 feet south of the main dam):
 - i. From the upstream slope, crest, downstream slope, within 15 feet of the earth abutments, to a distance of 15 feet from the toe of slope, as well as for a 15 foot radius surrounding the leakage/boil exit point.
- c. Main Dam:
 - Left embankment between the left spillway abutment and the left earth abutment, and within 15 feet of the abutments and toe of slope.
 - Spillway discharge channel between the spillway and Route 106 culverts.
 - Right embankment between the right spillway abutment and the right earth abutment, and within 15 feet of the abutments and toe of slope.
 - iv Along the entire length of the penstock for a distance of 10 feet on either side of the centerline of the penstock, as well as for a radius of 15 feet around the powerhouse.

4. **By July 1, 2003** schedule a site meeting with DES to conduct a dewatered inspection of the right low-level gate and repair as directed.

5. **By July 1, 2003** replace the gate stem and wood gate associated with the penstock intake located at the left spillway abutment.

6. **By July 1, 2003** prepare and submit as-built plans of the Dam, appurtenant works, south dike, and north dike.
- 7 **By July 1, 2003** prepare and submit stability calculations for the main dam and south dike
8. **By July 1, 2003** either repair or remove completely the wooden gatehouse located at the left spillway abutment.
9. **By November 1, 2003** complete the following earthwork repairs
 - a. North Dike (located 450 feet north east of the main dam).
 - i. Re-grade the north dike maintaining a minimum crest width of 6 feet and minimum side slopes of 2.5H:1V, and establish a hearty grass cover.
 - b. South Dike (located 650 feet south of the main dam):
 - i. Re-grade the south dike maintaining a minimum crest width of 6 feet and minimum slopes of 2.5H:1V, and establish a hearty grass cover.
 - ii. Repair the leakage/boil located approximately 10 feet from the downstream toe of the dike under the direction of a Professional Engineer Licensed in the State of New Hampshire.
 - c. Main Dam
 - i. Fill, compact, and establish a hearty grass cover over the area of settlement on the left earth embankment adjacent to the gatehouse located on the left spillway abutment.
10. **By November 1, 2003** repair the concrete portions of the main dam at the following locations under the direction of a Professional Engineer Licensed in the State of New Hampshire
 - a. Evaluate and repair the concrete of the left spillway abutment/gate house foundation.
 - b. Repair the cracks on the downstream face of the gatehouse.
 - c. Replace the missing concrete on the right downstream spillway training wall located approximately 4 feet from the upstream face.
 - d. Repair the cracks on the right upstream face concrete wall located at 3, 9, and 12 feet to the right of the spillway.
 - e. Repair the right downstream face of the dam located between the right spillway abutment and the right earth abutment.
 - f. Remove and replace the right upstream training wall located approximately 40 feet to the right of the spillway.
 - g. Repair the separated concrete between the right concrete spillway training wall and the right concrete retaining wall.

If the Owner elects to remove the dam pursuant to Paragraph E.2b, then the Owner must address Paragraph E.11, below, in accordance with all approved plans, specifications and permits for repair by the date indicated.

By November 1, 2003 remove the Dam as approved and conditional by DES

12. Send correspondence, data, reports, and other submissions made in connection with this Administrative Order, **other than appeals**, to DES as follows:

Jeffrey M. Blaney, Dam Safety Engineer
DES Water Division
P.O. Box 95
6 Hazen Drive
Concord, NH 03302-0095
Fax: (603) 271-3406
e-mail: jblaney@des.state.nh.us

F. APPEAL

Any person aggrieved by this Order may appeal the Order to the Water Council by filing an appeal that meets the requirements specified in Env-WC 200 within 30 days of the date of this Order. Copies of the rule are available from the DES Public Information Center at (603) 271-2975 or at <http://www.des.state.nh.us/desadmin.htm>. Appealing the Order does not automatically relieve the Owner of the obligation to comply with the Order.

G. OTHER PROVISIONS

Please note that RSA 482:89 provides for administrative fines, civil penalties, and criminal penalties for the violations noted in this Order, as well as for failing to comply with the Order itself. DES will continue to monitor the Owner's compliance with applicable requirements and will take appropriate action if additional violations are discovered.

This Order is being recorded in the Belknap County Registry of Deeds so as to run with the land.



COPY

Harry I. Stewart, P.E., Director
Water Division



COPY

Robert Monaco, Acting Commissioner

Certified Mail/RRR: *[insert number]*

cc: Gretchen Rule, DES Legal Unit
Public Information Officer, DES PIP Office
Jennifer J. Patterson, Sr. Assistant Attorney General, NH AGO EPB
Town of Belmont